

# Randolf Pohl

## List of Publications by Year in descending order

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Version: 2024-02-01

96  
papers

4,942  
citations

147801

31  
h-index

91884

69  
g-index

98  
all docs

98  
docs citations

98  
times ranked

1979  
citing authors

| #  | ARTICLE                                                                                                                                                                                                                                                                                                                   | IF   | CITATIONS |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------|
| 1  | The size of the proton. Nature, 2010, 466, 213-216.                                                                                                                                                                                                                                                                       | 27.8 | 1,113     |
| 2  | Proton Structure from the Measurement of 2S-2P Transition Frequencies of Muonic Hydrogen. Science, 2013, 339, 417-420.                                                                                                                                                                                                    | 12.6 | 676       |
| 3  | Improved Measurement of the Hydrogen $\alpha$ Frequency. Physical Review Letters, 2011, 107, 203001.                                                                                                                                                                                                                      | 7.8  | 343       |
| 4  | Muonic Hydrogen and the Proton Radius Puzzle. Annual Review of Nuclear and Particle Science, 2013, 63, 175-204.                                                                                                                                                                                                           | 10.2 | 283       |
| 5  | The Rydberg constant and proton size from atomic hydrogen. Science, 2017, 358, 79-85.                                                                                                                                                                                                                                     | 12.6 | 281       |
| 6  | Laser spectroscopy of muonic deuterium. Science, 2016, 353, 669-673.                                                                                                                                                                                                                                                      | 12.6 | 225       |
| 7  | Theory of the 2S $\alpha$ 2P Lamb shift and 2S hyperfine splitting in muonic hydrogen. Annals of Physics, 2013, 331, 127-145.                                                                                                                                                                                             | 2.8  | 134       |
| 8  | Precision Measurement of the Hydrogen-Deuterium $\alpha$ Shift. Physical Review Letters, 2010, 104, 233001.                                                                                                                                                                                                               | 7.8  | 109       |
| 9  | Two-photon frequency comb spectroscopy of atomic hydrogen. Science, 2020, 370, 1061-1066.                                                                                                                                                                                                                                 | 12.6 | 98        |
| 10 | Thin-Disk Yb:YAG Oscillator-Amplifier Laser, ASE, and Effective Yb:YAG Lifetime. IEEE Journal of Quantum Electronics, 2009, 45, 993-1005.                                                                                                                                                                                 | 1.9  | 92        |
| 11 | Laser measurements of the density shifts of resonance lines in antiprotonic helium atoms and stringent constraint on the antiproton charge and mass. Physical Review A, 1999, 59, 223-229.                                                                                                                                | 2.5  | 74        |
| 12 | Illuminating the proton radius conundrum: the $^4\text{He}^{++}$ Lamb shift. This paper was presented at the International Conference on Precision Physics of Simple Atomic Systems, held at <i>École de Physique, les Houches, France</i> , 30 May $\alpha$ 4 June, 2010.. Canadian Journal of Physics, 2011, 89, 47-57. | 1.1  | 69        |
| 13 | Measuring the $\hat{1}\pm$ -particle charge radius with muonic helium-4 ions. Nature, 2021, 589, 527-531.                                                                                                                                                                                                                 | 27.8 | 62        |
| 14 | Observation of Long-Lived Muonic Hydrogen in the 2S State. Physical Review Letters, 2006, 97, 193402.                                                                                                                                                                                                                     | 7.8  | 55        |
| 15 | Hyperfine structure of the metastable $p\bar{l}, \text{He}^+$ atomcule revealed by a laser-induced $(n, l) = (37, 35) \alpha$ $(38, 34)$ transition. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1997, 404, 15-19.                                                                  | 4.1  | 45        |
| 16 | The Proton Radius Problem. Scientific American, 2014, 310, 32-39.                                                                                                                                                                                                                                                         | 1.0  | 45        |
| 17 | Theory of the $n$ levels in muonic deuterium. Annals of Physics, 2016, 366, 168-196.                                                                                                                                                                                                                                      | 2.8  | 45        |
| 18 | Deuteron charge radius and Rydberg constant from spectroscopy data in atomic deuterium. Metrologia, 2017, 54, L1-L10.                                                                                                                                                                                                     | 1.2  | 43        |



| #  | ARTICLE                                                                                                                                                                                                                         | IF  | CITATIONS |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------|
| 37 | Laser Spectroscopy of Muonic Hydrogen and the Puzzling Proton. Journal of the Physical Society of Japan, 2016, 85, 091003.                                                                                                      | 1.6 | 26        |
| 38 | Laser resonance studies of the interactions of metastable antiprotonic helium atomcules p4He+ with surrounding H2 molecules. Chemical Physics Letters, 1997, 265, 137-144.                                                      | 2.6 | 23        |
| 39 | The Lamb-shift experiment in Muonic helium. Hyperfine Interactions, 2012, 212, 195-201.                                                                                                                                         | 0.5 | 22        |
| 40 | Precision Spectroscopy of Atomic Hydrogen. Journal of Physics: Conference Series, 2013, 467, 012003.                                                                                                                            | 0.4 | 22        |
| 41 | Quantum Interference Line Shifts of Broad Dipole-Allowed Transitions. Annalen Der Physik, 2019, 531, 1900044.                                                                                                                   | 2.4 | 22        |
| 42 | Kinetic energies of exotic H atoms at formation and cascade. , 1999, 119, 3-10.                                                                                                                                                 |     | 20        |
| 43 | Thin-disk laser pump schemes for large number of passes and moderate pump source quality. Applied Optics, 2015, 54, 9400.                                                                                                       | 2.1 | 20        |
| 44 | Experiments towards resolving the proton charge radius puzzle. EPJ Web of Conferences, 2016, 113, 01006.                                                                                                                        | 0.3 | 20        |
| 45 | Theory of the $n=2$ levels in muonic helium-3 ions. European Physical Journal D, 2017, 71, 1.                                                                                                                                   | 1.3 | 20        |
| 46 | Thin-disk laser scaling limit due to thermal lens induced misalignment instability. Applied Optics, 2016, 55, 9022.                                                                                                             | 2.1 | 19        |
| 47 | Quantum interference effects in laser spectroscopy of muonic hydrogen, deuterium, and helium-3. Physical Review A, 2015, 92, .                                                                                                  | 2.5 | 18        |
| 48 | Quenching of metastable states of antiprotonic helium atoms by collisions with H2 molecules. Journal of Chemical Physics, 1998, 109, 424-431.                                                                                   | 3.0 | 17        |
| 49 | Active fiber-based retroreflector providing phase-retracing anti-parallel laser beams for precision spectroscopy. Optics Express, 2016, 24, 17470.                                                                              | 3.4 | 17        |
| 50 | Experiment to measure the Lamb shift in muonic hydrogen. , 2000, 127, 161-166.                                                                                                                                                  |     | 16        |
| 51 | Precision spectroscopy of $2S \rightarrow nP$ transitions in atomic hydrogen for a new determination of the Rydberg constant and the proton charge radius. Physica Scripta, 2015, T165, 014030.                                 | 2.5 | 16        |
| 52 | The size of the proton and the deuteron. Journal of Physics: Conference Series, 2011, 264, 012008.                                                                                                                              | 0.4 | 14        |
| 53 | LAAPD low temperature performance in X-ray and visible-light detection. IEEE Transactions on Nuclear Science, 2004, 51, 1575-1580.                                                                                              | 2.0 | 13        |
| 54 | Large area APDs for low energy X-ray detection in intense magnetic fields. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2003, 505, 136-139. | 1.6 | 12        |

| #  | ARTICLE                                                                                                                                                                                                                                                                   | IF  | CITATIONS |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------|
| 55 | 2S state and Lamb shift in muonic hydrogen. <i>Hyperfine Interactions</i> , 2009, 193, 115-120.                                                                                                                                                                           | 0.5 | 12        |
| 56 | Spatial hole burning in thin-disk lasers and twisted-mode operation. <i>Applied Optics</i> , 2018, 57, 2900.                                                                                                                                                              | 1.8 | 12        |
| 57 | Laser spectroscopy of light muonic atoms and the nuclear charge radii. <i>SciPost Physics Proceedings</i> , 2021, , .                                                                                                                                                     | 0.4 | 12        |
| 58 | Quantum interference shifts in laser spectroscopy with elliptical polarization. <i>Physical Review A</i> , 2015, 92, .                                                                                                                                                    | 2.5 | 11        |
| 59 | Lifetime and population of the $S_{22}$ state in muonic hydrogen and deuterium. <i>Physical Review A</i> , 2013, 88, .                                                                                                                                                    | 2.5 | 9         |
| 60 | Multipass laser cavity for efficient transverse illumination of an elongated volume. <i>Optics Express</i> , 2014, 22, 13050.                                                                                                                                             | 3.4 | 9         |
| 61 | Characterization of a Continuous Muon Source for the Non-Destructive and Depth-Selective Elemental Composition Analysis by Muon Induced X- and Gamma-rays. <i>Applied Sciences (Switzerland)</i> , 2022, 12, 2541.                                                        | 2.5 | 9         |
| 62 | Improved x-ray detection and particle identification with avalanche photodiodes. <i>Review of Scientific Instruments</i> , 2015, 86, 053102.                                                                                                                              | 1.3 | 8         |
| 63 | Multipass amplifiers with self-compensation of the thermal lens. <i>Applied Optics</i> , 2018, 57, 10323.                                                                                                                                                                 | 1.8 | 8         |
| 64 | The size of the proton. <i>Hyperfine Interactions</i> , 2012, 212, 185-194.                                                                                                                                                                                               | 0.5 | 7         |
| 65 | Thin-disk laser multi-pass amplifier. <i>Proceedings of SPIE</i> , 2015, , .                                                                                                                                                                                              | 0.8 | 7         |
| 66 | Laser spectroscopy of metastable states in the $2^3S_1$ cascade of antiprotonic $^3\text{He}$ . <i>Physical Review A</i> , 1998, 58, 3604-3610.                                                                                                                           | 2.5 | 6         |
| 67 | Influence of oxygen admixtures on the lifetime of metastable antiprotonic helium atoms. <i>Physical Review A</i> , 1998, 58, 4406-4415.                                                                                                                                   | 2.5 | 6         |
| 68 | Application of large-area avalanche photodiodes to X-ray spectrometry of muonic atoms. <i>Spectrochimica Acta, Part B: Atomic Spectroscopy</i> , 2003, 58, 2255-2260.                                                                                                     | 2.9 | 6         |
| 69 | Collisional quenching of metastable states of antiprotonic helium by hydrogen and deuterium molecules. <i>European Physical Journal D</i> , 2001, 13, 305-316.                                                                                                            | 1.3 | 5         |
| 70 | The Lamb shift in muonic hydrogen This paper was presented at the International Conference on Precision Physics of Simple Atomic Systems, held at Collège de Physique, les Houches, France, 30 May - 4 June, 2010.. <i>Canadian Journal of Physics</i> , 2011, 89, 37-45. |     | 5         |
| 71 | The Lamb shift in muonic hydrogen and the proton radius puzzle. <i>Hyperfine Interactions</i> , 2014, 227, 23-28.                                                                                                                                                         | 0.5 | 5         |
| 72 | The Lamb shift in muonic hydrogen and the proton radius. <i>Physics Procedia</i> , 2011, 17, 10-19.                                                                                                                                                                       | 1.2 | 4         |

| #  | ARTICLE                                                                                                                                                                                               | IF  | CITATIONS |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------|
| 73 | Is the proton radius a player in the redefinition of the International System of Units?. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 4064-4077. | 3.4 | 4         |
| 74 | Laser spectroscopy of muonic hydrogen. Annalen Der Physik, 2013, 525, 647-651.                                                                                                                        | 2.4 | 4         |
| 75 | Improved active fiber-based retroreflector with intensity stabilization and a polarization monitor for the near UV. Optics Express, 2021, 29, 7024.                                                   | 3.4 | 4         |
| 76 | 2S-4S spectroscopy in hydrogen atom: The new value for the Rydberg constant and the proton charge radius. AIP Conference Proceedings, 2018, , .                                                       | 0.4 | 3         |
| 77 | Long-lived population of the metastable 2s state in muonic hydrogen. , 1999, 119, 77-81.                                                                                                              |     | 2         |
| 78 | Die Vermessung des Protons. Physik in Unserer Zeit, 2012, 43, 229-235.                                                                                                                                | 0.0 | 2         |
| 79 | Passive alignment stability and auto-alignment of multipass amplifiers based on Fourier transforms. Applied Optics, 2019, 58, 2904.                                                                   | 1.8 | 2         |
| 80 | Laser spectroscopy of antiprotonic helium and stringent constraint on the antiproton charge and mass. Nuclear Physics A, 2000, 663-664, 955c-958c.                                                    | 1.5 | 1         |
| 81 | Systematic Frequency Shifts in Spectroscopy of 1s-2s Transition in Atomic Hydrogen. , 2011, , .                                                                                                       |     | 1         |
| 82 | Reach-Through Avalanche Photodiodes in Soft X-ray Detection. IEEE Transactions on Nuclear Science, 2014, 61, 2419-2424.                                                                               | 2.0 | 1         |
| 83 | On the double peak structure of avalanche photodiode response to monoenergetic x-rays at various temperatures and bias voltages. Journal of Instrumentation, 2018, 13, C01033-C01033.                 | 1.2 | 1         |
| 84 | Compact 20-pass thin-disk amplifier insensitive to thermal lensing. , 2019, , .                                                                                                                       |     | 1         |
| 85 | Muonic hydrogen spectroscopy: the proton radius puzzle. Proceedings of SPIE, 2010, , .                                                                                                                | 0.8 | 0         |
| 86 | Precision spectroscopy on atomic hydrogen. Proceedings of SPIE, 2011, , .                                                                                                                             | 0.8 | 0         |
| 87 | Disk laser delivering 50 mJ with 400 ns latency. , 2011, , .                                                                                                                                          |     | 0         |
| 88 | The size of the proton from the Lamb shift in muonic hydrogen. , 2011, , .                                                                                                                            |     | 0         |
| 89 | Das Proton bleibt zu klein. Physik in Unserer Zeit, 2013, 44, 110-111.                                                                                                                                | 0.0 | 0         |
| 90 | Laser spectroscopy of muonic deuterium: New contribution to the proton puzzle. , 2016, , .                                                                                                            |     | 0         |

| #  | ARTICLE                                                                                                                                                           | IF   | CITATIONS |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------|
| 91 | Auch das Deuteron ist zu klein. Physik in Unserer Zeit, 2016, 47, 266-267.                                                                                        | 0.0  | 0         |
| 92 | Fundamental symmetry tested using antihydrogen. Nature, 2020, 578, 369-370.                                                                                       | 27.8 | 0         |
| 93 | 2S state and Lamb shift in muonic hydrogen. , 2009, , 115-120.                                                                                                    |      | 0         |
| 94 | Highly stable remote clock comparisons via 920 km optical fiber for precision spectroscopy of atomic hydrogen. , 2012, , .                                        |      | 0         |
| 95 | Challenging QED with atomic Hydrogen. , 2019, , .                                                                                                                 |      | 0         |
| 96 | Improved active fiber-based retroreflector with intensity stabilization and a polarization monitor for the near UV: erratum. Optics Express, 2022, 30, 7340-7341. | 3.4  | 0         |